

DOCUMENT RESUME

ED 194 073

IR 008 930

AUTHOR Simonson, Michael R.
 TITLE Instructional Media, Attitude Formation and Change: A Critical Review of the Literature.
 SPONS AGENCY Iowa State Univ. of Science and Technology, Ames. Research Inst. for Studies in Education.
 PUB DATE Apr 80
 NOTE 55p.: Paper presented at the Annual Convention of the Association for Educational Communications and Technology (Denver, CO, April 21-24, 1980). For complete proceedings of the Research and Theory Division, see IR 008 914.
 EDRS PRICE MF01/PC03 Plus Postage.
 DESCRIPTORS *Attitude Change; Attitude Measures; Bibliographies; Educational Media; *Educational Television; *Instructional Films; *Literature Reviews; *Media Research

ABSTRACT

This review identified over 140 media/attitude studies and categorized them according to the type of media and type of attitude investigated. This categorization made it possible to determine if identifiable relationships existed between instructional media and attitudes of viewers. The literature on experiments dealing with three types of instructional media was included in the review--television, motion pictures (primarily 16mm films), and still pictures (filmstrips, slides, prints, and filmographs). Of primary concern was the use of media in classroom instruction. This was at the exclusion of broadcast or mass communication applications of these media. An attempt was also made to include only experimental or quasi-experimental studies according to criteria established by Campbell and Stanley (1963). (Author)

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TITLE: INSTRUCTIONAL MEDIA, ATTITUDE FORMATION AND
CHANGE: A CRITICAL REVIEW OF THE LITERATURE

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PAPER PRESENTATION FOR THE RESEARCH AND THEORY DIVISION
AT THE 1980 ANNUAL CONVENTION OF THE ASSOCIATION FOR
EDUCATIONAL COMMUNICATION AND TECHNOLOGY, DENVER,
COLORADO.

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*RESEARCH FOR THIS MANUSCRIPT WAS SUPPORTED IN PART BY
A GRANT FROM THE RESEARCH INSTITUTE FOR STUDIES IN
EDUCATION, COLLEGE OF EDUCATION, IOWA STATE UNIVERSITY,
AMES, IOWA.

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INSTRUCTIONAL MEDIA, ATTITUDE FORMATION AND CHANGE

As early as 1931 Thurstone was investigating the influence of film on children's attitudes toward concepts depicted in the film. Specifically, opinions about the Chinese. Even at that early date the impact of the newer media on the more subjective components of learning such as opinion, liking and feeling were a concern. Thurstone (1931) found that film could change attitudes in both a positive and a negative direction. Since Thurstone's study many other researchers have investigated the relationship between attitudes and instructional media.

This review identified over one hundred forty of these media/attitude studies, and categorized them according to the type of media and type of attitude investigated. This categorization made it possible to determine if identifiable relationships existed between instructional media and attitudes of viewers.

Experiments dealing with three types of instructional media were found in sufficient quantity and quality in the literature to be included in this review. The media included were:

- I. television,
- II. motion pictures (primarily 16mm film), and
- III. still pictures (filmstrips, slides, prints, filmographs).

Of primary concern to this review was the use of media in classroom instruction. This was at the exclusion of broadcast or mass communication applications of these media. Also, while not always possible, an attempt was made to include only experimental or quasi-experimental studies in the review according to criteria established by Campbell and Stanley (1963).

Attitude Defined

In order to clearly establish parameters for the review process a set of definitions was established to guide search activities. Attitude was a difficult term to adequately define, primarily because it had been defined by so many, but also because of its many lay uses and connotations. However, for the purpose of this review attitude was defined as:

A mental and neural state of readiness, organized through experience, exerting a directive or dynamic influence upon the individual's response to all objects and situations with which it is related (Thomas and Znaniecki, 1918).

Additionally, Zimbardo and Ebbesen (1970) divided attitude into three components: affect, cognition, and behavior. The affective component was said to consist of a person's evaluation of, liking of, or emotional response to some object or person. The cognitive component was conceptualized as a person's beliefs about, or factual knowledge of, the object or person. The behavioral component involved the person's overt behavior directed toward the object or person.

These definitions were operationalized for this review by dividing attitude/media research into two types--attitude toward the medium of instruction, and attitude toward content delivered by media.

The search process also necessitated a further sub-division of media/attitude experimentation. Generally, media/attitude researchers either examined a learner's attitude toward the medium (often referred to as liking), or attitudes produced in learners toward a medium after some instructional activity. A second type of attitude toward medium experimentation usually included a design that compared two groups of learners, one receiving instruction by the medium, the other by some other form (such as a lecture).

Similarly, when researchers investigated learners' attitudes toward content delivered by some medium they would usually examine either content-related attitude formation (liking) or attitude change produced as a result of the mediated instruction. For the purpose of this review these four types of attitude were used to categorize studies.

The types were:

- attitudes of learners toward a medium,
- comparisons of attitudes toward more than one media or method,
- attitude of learners toward content delivered by media, and
- attitude changes toward content produced as a result of mediated instruction.

Obviously, no category system is without mis-matches, but this grouping seemed to allow for the most logical discussion of studies (see Table 1).

The remainder of this review of the literature follows the organizational framework provided above and depicted in Table 1. Experimental studies concerned with each of the three types of media were reviewed in turn, beginning with television. Each review was divided into four sub-parts corresponding to the operationalized definition of attitude. A summary of conclusions was included as was a discussion of the design methodology of media/attitude research.

I. TELEVISION (TV)

More than sixty studies that examined the influence television instruction had on learner's attitudes were identified. These studies were categorized according to the type of attitude investigated, and each category was reviewed below.

A. Attitude Toward Television (Liking): Twelve studies examined the attitudes users had toward television (TV) as a mode of instruction. Generally, the studies in this category were not experimental, but rather were one-time evaluations of opinion that asked those involved in televised classroom instruction to rate their reactions toward this method of teaching.

Five studies reported TV users who were generally favorable toward this mode of instruction. Jacobs and Bollenbacher (1960) reported that in a 1960 administration of an attitude scale toward a TV course on biology the students were more favorable toward TV than were students in 1958. Westley and Jacobson (1962,a) found that a group of teachers they sampled were highly favorable toward TV as a mode of instruction. Neidt (1967) reported that university students "liked" TV lessons on study skills they saw, and Dambrot (1972) found that college psychology students had slightly above-neutral reactions toward TV, even though these TV attitudes were slightly lower than those toward the course in general. Vandermeer (1961) discussed a study by Hunt that evaluated the use of fifteen televised lessons on the teaching of reading. Both teachers and parents indicated a significantly favorable attitude (liking) toward television as a mode of instruction.

Three studies reported results where learners indicated a negative feeling toward televised instruction. Colle and Albert (1958) surveyed one hundred sixty-two teachers who did not use television in their teaching and found that only 5% approved of TV as a mode of instruction (50% disapproved and 45% were undecided). There seemed to be a relationship between familiarity and approval. Bobren (1960) found that student attitudes toward a TV course were negative on nine of eleven questionnaire

scales. Larimer and Sinclair (1969) polled students in a course taught using a two-way television link-up between instructor and class. Students reported a negative attitude toward the class.

Several researchers attempted to evaluate the reasons for the inconsistent reactions toward television expressed by TV users. Westley and Jacobson (1962,b) conducted a second study on teacher's attitudes toward television as a method of instruction. They found that teachers who had used TV in their own classes were significantly more favorable toward this technique than were teachers who had not used television. Toch (1960) also examined whether familiarity with television had a relationship to liking of this medium. Results were inconclusive but did show a relationship between those who indicated they approved of educational television and those who actually chose to watch an educational program. Neidt (1964) found a "Hawthorne effect" in operation when television was used in classroom situations. Learner's attitudes toward television tended to decline as TV was used more in the classroom. Klapper (1958) found that liking could be influenced according to the way information was presented via television. Highly visualized lessons, in contrast to lessons showing only an instructor and blackboard, produced strongly favorable attitudes toward television in viewers.

Generally, results reported above tended to be somewhat inconclusive and sometimes contradictory. Probably the attitude (liking) developed in viewers of instruction delivered by television depended on more than just the medium. Variables such as familiarity with medium, amount of visualization, quality of production, and utilization techniques may have been crucial in developing favorable or unfavorable attitudes in learners toward TV as a method of delivering instructional information.

B. Comparisons Between
TV and Other Modes:

Another procedure for determining student's attitudes toward televised instruction was attempted by researchers who compared two groups of learners who received the same content by two modes--television and some other, usually the conventional lecture/discussion. Greenhill, Carpenter, and Ray (1956) attempted to ascertain students' preferences for televised instruction by having one group of students receive five weeks of face-to-face instruction and then five weeks of televised teaching. The other group received similar instruction but in the reverse order. Students were then allowed to choose the type of learning situation they wanted to continue receiving. Seventy-one percent chose TV, even though only 51% indicated they preferred televised instruction.

Champa (1958) divided science students into three treatment groups (conventional instruction, TV supplement to instruction, and TV/film supplement), and found that students favored the use of TV or TV/film "almost unanimously." A similar study was conducted by Westley (1963). Ninth grade math students received information by television or conventional instruction. At the conclusion of the year-long course the students in the TV group rated their mode of instruction more positively than did the conventional instruction students. Morrison (1967) compared dental students' attitudes toward instruction after half had received instruction by television and half conventionally. Attitudes toward instruction were significantly more favorable for the TV class.

One researcher (Janes, 1964) attempted to identify what correlated with learners' preferences for television and found that self-confidence and intelligence correlated significantly with preference for television. Neidt (1968) compared attitudes toward instruction expressed by learners

who were taught by one of four modes. This study reported that programmed instruction had the most favorable rating, followed by televised instruction, small class and large class.

Contradictory evidence to the favorable results reported above was also found in the literature. Macomber, et. al. (1958) reported that college students generally preferred conventional class situations to televised instruction. Bobren and Siegel (1960) described a study that compared attitudes of five sections of engineering students taught conventionally to five sections taught by television. The TV students had relatively more negative attitudes than the traditionally taught students. Woodward (1964) found that college biology students preferred conventional instruction to television. Additionally, two studies (Tannebaum, 1956; and Davis and Johnson, 1966) reported no significant differences between the attitudes of viewers of a televised presentation and a live one.

It would seem, then, that preferences for televised instruction were probably dependent on some other variable, or variables, than merely mode of instruction. Holmes (1959) stated this as a general conclusion of a study conducted to analyze the trends of results in television research. Holmes concluded that the attitudes of students toward television could probably be more accurately described as attitudes toward other elements involved in the teaching-learning process, such as the instructor, the situation, and the content. A study in the Cincinnati Public Schools (1959) gave support to this contention when it reported that different ability students tended to react differently to biology instruction by television.

Based upon the results reported above, there did not seem to be any conclusive trends in the literature supporting the hypothesis that televised instruction is either favored, or disliked, by students. One

generalization that seemed to be supported was that the content of an instructional presentation probably played a more important role in the liking of delivery mode than did the delivery mode of the instruction itself.

C. Attitude Toward Content
of TV Instruction:

Eighteen studies were identified that attempted to determine if students demonstrated any liking of, or preference for, the content presented in televised lessons. Again, results were fairly evenly divided between those studies where learners preferred TV-delivered content and studies where no preferences were reported.

Eight studies produced results where viewers of televised instruction indicated a positive attitude toward the content delivered by TV. Two of these eight studies compared televised instruction to some form of control or non-television teaching. Westley and Jacobson (1963) found that ninth grade TV students had more favorable attitudes toward math than non-TV students. Coldevin (1975) found that all four variations of a TV lesson produced more positive attitudes toward the content of the lessons than attitudes produced in control subjects. The TV treatment that repeated information 5 seconds after each subunit of the televised lesson (for student response and involvement) produced the greatest positive attitudes in subjects.

The six other experiments that reported positive results merely evaluated viewers' attitudes toward the content of a television presentation and reported conclusions. Hunt (1961) found that teachers who watched 15 half-hour television programs on individualizing reading instruction developed positive attitudes toward this topic. Kihava, et.al. (1961) reported that television lessons favorably affected Japanese students

attitudes toward science. Skinner (1967) used televised science lessons with variations in the method of on-tape subject presentation and post-tape follow-ups. Results reported that interest in science improved, with the largest positive gains for girls. Dambrot (1972) gave an attitude scale to 2900 college psychology students and found that a slightly more positive than neutral reaction to a TV course was reported by subjects. Six videotaped science lessons were developed by Galey and George (1974) and shown to first grade students in order to motivate them to continue science experimentation. Results indicated the videotaped lessons were successful. Piper and Butts (1974) found that after seventy-six science teachers participated in a televised science in-service program the teachers reported having significantly more favorable attitudes toward science than before the sessions began.

Contradicting the results reported in the studies reviewed above were the results of ten experiments where negative or neutral reactions to televised information were reported. Seven of these eleven reported no significant differences between attitudes of subjects who saw a television presentation and those who viewed similar information presented in some other way. Kumata (1958) found no difference in attitudes toward social science course content for TV or non-TV students. Jacobs and Bollenbacher (1960) reported that students' attitudes toward science were not different for four classes of varying ability levels either taught by television or taught conventionally. Garry (1960) reported similar no-difference results in a study that evaluated attitudes toward science of fifth grade students.

Walton (1963) compared the attitudes toward course content of college students who viewed either a live presentation or closed-circuit TV and found no significant differences between groups. Backens (1970) reported

that subjects who received instruction by the conventional method had significantly more positive attitudes toward a mathematics course than did subjects who saw closed-circuit versions of the lecture, even when follow-up sessions were provided for the TV treatment subjects.

A television course in physical science for ninth graders was compared to instruction that was not televised by Welliver (1967). Attitude results were not significantly different. Sims (1968) compared subjects' attitudes toward geography after two groups received either television instruction or live classroom lecture/discussion. No significant differences in attitude toward geography were reported. In a similar study, Levine (1973) compared closed-circuit television instruction to traditional lecture/recitation and found no significant differences between subjects' attitude toward chemistry. A study by Ganschow, et.al. (1970) compared videotaped to audiotaped instruction on vocational education. While over-all attitudes toward this topic were not different, it was found that subjects who saw social models of an ethnic group like their own tended to score more positively on attitude measures toward the occupation of the model they viewed.

Booth and Miller (1974) attempted to evaluate television's impact on attitude formation by showing color and monochrome versions of the same lesson. They found an age/color interaction. Primary grade students tended toward more positive attitudes for monochrome presentations while color was found to be a positive factor in promoting levels of valuing in the upper elementary grades.

It would seem apparent from the results reported that merely televising a lesson did not necessarily promote positive attitudes toward the content of the lesson, and often produced negative reactions in viewers. Negative

attitudes toward course content seemed to be very likely for subjects who were required to view closed-circuit, or videotaped replays, of live lectures. Variables other than delivery mode probably were most important in determining students' attitudes toward instructional content.

D. Attitude Changes Toward
Content of TV Presentations:

Possibly one of the most powerful techniques for determining the influence of television on the content-related

attitudes of viewers was attempted by researchers who developed television treatments designed to change existing attitudes of viewers. The studies in this category evaluated techniques for altering attitudes toward some instructional topic through the use of televised presentations.

Twelve studies were found where televised treatments were, in varying degrees, successful in altering pre-existing, content-related attitudes of viewers in the desired direction. In 1959, Asher conducted a simply designed experiment to determine if attitude changes toward the main concepts depicted on a television program could be produced, and if change was a function of source credibility (national network versus local educational station), or predictable from a viewer dogmatism scale rating. Attitude changes were produced, but neither source or dogmatism data provided significant conclusions.

Lottes (1960) reported that a series of fifteen televised lessons on the individualization of reading instruction were successful in positively changing reading teachers' attitudes toward that topic. Weldon (1962) conducted a similar study that evaluated the impact of a twelve-hour television course on adults' attitudes toward civil defense. Experimental subjects reported significantly positive attitude changes toward civil

defense, as compared to control subjects. Environmental education was the topic presented by television in a study conducted by Wright (1971). Results showed a significant positive attitude change toward environmental education as a result of televised treatment procedures. Menzies (1973) reported that violent attitudes of prison inmates were positively (made more violent) influenced by three forty-five minute violent television treatments, as compared to non-violent TV, and that there was a multiplier effect apparent. O'Brien (1973) reported the results of an experiment where only urban students' attitude changes toward the topic of problem solving were positively influenced by a televised presentation. Rural students' attitudes were more influenced by a conventional lesson. It was hypothesized that viewers of persuasive information need to identify with the communicator in order for attitudes to be influenced, and since the rural students identified with the real instructor, but not the televised message, they were not as susceptible to television as were urban students.

Croft (1969) and Donaldson (1976) designed their studies to evaluate subjects' reactions to televised instruction as compared to control groups, but also as compared to subjects viewing a live message. Croft wanted to change the audience's attitude negatively toward intercollegiate athletics. Results indicated that a televised message was successful in changing viewers' attitudes, but not as powerfully as those changes produced by the "live" communication. Donaldson's results were similar. A televised communication on the disabled was successful in changing college students' attitudes toward disabled people as compared to control subjects, but viewers of a live presentation had greater positive changes. Both Croft (1969) and Donaldson (1976) hypothesized that TV was not as powerful as a live communication because TV had fewer informational cues (ie. was not

as "realistic").

Several researchers evaluated not only the impact of televised messages on attitude change, but also whether variations in the type of TV presentation would have a varying impact on attitudes. Seiler (1971) designed an experiment with four treatments. Each of the three experimental groups viewed a television version of a persuasive speech on the Vietnam War. One group's tape had technical visuals such as graphs and charts interspersed on its videotape. Another group had "human-interest visuals," such as photographs, on its videotape. The third group saw only the speaker. Both of the "supplemented" versions produced significantly greater attitude change than the other treatment. The visuals were thought to add more information, and to increase the credibility of the message.

Kraus (1962) took a slightly different approach. In this study on attitudes of whites towards Negroes the race of the two communicators was varied. Greatest positive race-related attitude changes were produced as a result of treatments where both races were represented, as compared to all-white or all-black communicators. Possibly, the message was perceived as being more credible in this instance. Amirian (1962) found that significant, positive, science-related attitude changes were produced when televised lessons were supplemented with follow-up assignments.

An experiment conducted by Kraemer, et.al. (1975) also evaluated the way a televised message was presented in order to evaluate the type of attitude changes produced. They found that including a role-playing actor on a videotape who reacted favorably to the persuasive communication (race relations, in this case) was as successful in producing desired attitudinal changes in viewers as was the filmed message presented alone, and that

both procedures produced significant attitude changes, as compared to the control treatment.

Contradictory results were also found in the literature. The conclusions of five studies indicated that attitude changes were not produced as a consequence of a televised communication. A study by Meyer and Gute (1972) evaluated the affect of channel variation on attitude change and source credibility. There were no differences in attitude change reported between groups who received a persuasive message either by video, audio, or live, as compared to each other or a control group. Evans, Wieland and Moore (1961) reported that a single TV presentation of a controversial educational program did not significantly alter viewers attitudes toward the controversial topic (prejudice), as compared to control subjects' attitudes.

Bickel (1964), Field (1972), and Browning (1975) reported the results of studies where desired attitude changes were not found in viewers of televised instruction. TV versus live (Bickel, 1964), film versus color TV versus monochrome TV (Browning, 1975), and color TV versus monochrome TV (Field, 1972) were compared, and no significant attitude changes were reported.

Several researchers attempted to more completely explore procedures for using television to deliver messages that would successfully change the content-related attitudes of viewers. Keating and Latane (1972) found that when intermittent distractions (2-second decrease in video signal by 20db, twenty times during a persuasive speech) were added to a televised message there was a significant positive change in attitudes as compared to subjects who viewed the speech with no distractions or a continuous distraction. It was theorized that the intermittent distractions acted

to inhibit viewers' counter-argumentation, increased their involvement, and lowered their defenses to the counter-attitudinal message presented on the videotape.

Simonson (1977) and Goldman (1969) evaluated the impact of commitment and involvement of subjects in making of videotapes on attitudes. Simonson found that by inducing students to commit themselves on videotape to a counter-attitudinal position their attitudes would shift in the desired direction. Goldman reported that microteaching (videotape recording of self while teaching) significantly altered education students' attitudes toward self and teaching.

When the results of experiments designed to change content-related attitudes were evaluated collectively it seemed obvious that televised messages were often successful in producing desired affective outcomes. It also seemed obvious that television alone did not account for these changes. Attitudinal outcomes were produced when television presentations were designed to bring about those changes, just as cognitive outcomes can be produced in well developed lessons. If a persuasive message was produced that maximized the capabilities of the television medium, and that incorporated some theory of attitude change, (e.g. communicator credibility), then desired attitude alterations in the viewers of that lesson were probably found. However, if television was improperly used, or used only to vary the channel or method of message delivery, then desired attitudinal outcomes were probably less likely to be found. In the domain of attitude formation and change, television's impact seemed to be similar to the impact it has in the cognitive domain. If correctly planned, produced and used, televised instruction will be liked, will promote interest in the message it delivers, and will be successful in changing attitudes.

II. MOTION PICTURES (FILM)

Research concerned with the relationship between motion photography (film) and attitudes was identified and reviewed by applying the same categorization system as that used for television research. Over fifty studies were collected. While there were many similarities reported between the motion media (TV and film), there were also many production, visual, and utilization differences found that might have produced conclusions different from those reported in the television literature concerning the impact of motion photography on attitudes.

A. Attitude Toward Film: Generally, researchers reported viewers of film enjoyed it as a communication mode (Lange, et.al., 1956; Redemsky, 1959; for example). However, when film was used as the basic instructional method the reactions of viewers were less likely to be so uniformly positive. Wittich et.al. (1959) reported that science students became interested in science after viewing films but they did not "look forward to seeing the films." As a partial reaction to the mixed opinions of instructional film viewers, several researchers attempted to determine the characteristics of instructional films that tended to be valued positively by viewers. This was done in order to prescribe techniques that would make teaching films more likely to be favorably received by students.

Greenhill and McNiven (1956) were able to determine that the more useful a learner perceived the information presented in a film, or the nearer he/she felt they were to the people or objects depicted in a film, the more favorably they would react to the film, and learning would be

increased. Knowlton and Hawes (1962) found that a positive attitude about film as a method of teaching and learning was significantly correlated with knowledge about instructional uses of motion photography. Redemsky (1959) reported that if a specific procedure for the showing of a film (one that included preview and review discussions) was used, most students reacted very favorably to motion photography as a method of instruction.

B. Comparisons Between
Film and Other Modes:

A few studies were identified that attempted to determine viewers' liking for instructional film by comparing units taught by motion photography with some other method of teaching. Ganschkow, et.al. (1970) reported that vocational education students reacted more favorably to filmed instruction than to the same information presented in written form. Champa (1958) conducted a study that evaluated attitudes toward TV and film when they were used to teach ninth grade science. Results indicated pupils favored the use of TV and film "almost unanimously."

Two studies compared a film to a filmograph (still pictures of film scenes) version of the same script. Miller (1969) hypothesized that film motion would increase the emotional involvement of viewers and produce positive attitudinal responses. Results supported this hypothesis. However, a study conducted by the U.S. Army (Instructional Film Research Program, 1954) reported that there was no difference in attitudes produced toward film or filmograph versions of a presentation on military police support for emergencies.

Similar inconclusive results were reported by Hayes (1966). Students' attitudes toward instruction were not significantly different between those taught driver's education conventionally and those taught

using film.

Weisgerber (1960) conducted a large-scale experiment involving the use of science motivational films in several grade levels of two schools. Neither junior high or high school students were more favorable toward filmed instruction than they were toward conventional instruction that used factual rather than motivational science films.

An interesting adaptation of the use of film in teaching was evaluated in a study conducted by Erickson (1956). In this experiment students actually produced a film in one class. Students in the film-making group reported that they enjoyed this technique for learning science more than students in a conventional treatment.

Generally, results seemed to indicate that students enjoyed filmed instruction and had favorable attitudes toward this medium. While the small numbers of attitude-toward-film studies reviewed made definitive conclusions of a general nature impossible, it did seem that film was more often favorably valued than not, and was generally more positively valued than televised instruction. Probably the single most important reason for this was the fact that most classroom films were commercially made and were technically excellent, while many TV lessons were locally prepared, not as well done, and therefore not as favorably received.

C. Attitude Toward Content
of Filmed Instruction:

The basic form of content-related film/ attitude research involved assessing the reactions of viewers to information presented by motion pictures. While generalizable conclusions were not readily apparent, the results of the several studies reviewed in this category did provide some interesting insights into the liking of the

content of filmed instruction expressed by viewers, even if these insights were not exactly definitive. As early as 1933, Charters had summarized several studies that evaluated the impact of film on attitudes of children. It was found that desired attitudinal outcomes were produced, but multiple showings of a film tended to confuse viewers' attitudes.

Rizik (1974) wanted to determine if a film on rehabilitation counseling would produce positive attitudes toward that topic in college students. Results indicated that subjects felt positively about this topic after viewing the film. Wittich, et.al. (1959) also reported positive affective reactions to film. These attitudes were expressed by subjects who viewed the 162 thirty-minute films making up the Harvey White Physics Film Project. Experimental subjects reported greater positive interest in science than did non-film viewing control subjects. However, no differences in science interest were reported by Noall and Winget (1959) in a study evaluating the same physics film series. Weisgerber's (1960) study of interest toward science as influenced by motivational films reported that while junior high school students were not significantly influenced by the films, high school pupils were.

Smith (1973) compared attitudes of sociology students toward either film-only instruction or conventional instruction. Post-tests of attitude toward the courses tended to demonstrate that the film-only students were more positive about sociology, but statistically significant results were not obtained. Even more negative results were reported in one study that found that unfavorable reactions toward physics and chemistry were produced in viewers of films, as compared to conventionally taught students. These results were reported as part of a project evaluation conducted by Popham and Sadnavitch (1960).

Several researchers attempted to evaluate the film medium to determine

how it could be used more effectively to promote liking of the messages carried by motion pictures. Donohue (1973) found that political advertisements were perceived more favorably in color than in black and white.

Greenhill & McNiven (1956) concluded that students valued the content of a film more positively if they perceived a usefulness for the content of the motion picture, and if they identified with the characters or events depicted on the film. Weisgerber and Coles (1971) discovered that while different racial groups did not react differently to films on "self-image" there were mixed feelings expressed by several ability groupings of subjects.

In summary, there did not seem to be general conclusions apparent from the studies reviewed in this section. In some cases subjects reported significantly favorable attitudes toward the content of instructional films. In other cases, no differences, or negative reactions, were reported. It would seem likely that there were intervening variables that exerted an influence on the impact a filmed message had on the message-related attitudes of viewers.

D. Attitude Changes Toward
the Content of Filmed Instruction:

Landmark studies conducted in the
1930's (Thurstone, 1931; Peterson
and Thurstone, 1933) demonstrated

the potential impact of motion pictures on the social attitudes of children. Since then, attitude change has been frequently studied by film researchers. More than thirty studies were found in the literature that evaluated the ability of filmed presentations to alter existing attitudes of viewers.

Thurstone (1931) found that two versions of a motion picture about the Chinese produced either favorable or unfavorable attitudes in children, depending on the intent of the message presented in the film. Peterson

and Thurstone (1933) reported on a series of experiments that used motion pictures to alter the attitudes of elementary and secondary students' attitudes toward topics such as nationality and race, crime, punishment of criminals, capital punishment and prohibition. They reported that motion pictures had a definite, lasting effect on the social attitudes of children, especially younger children, and that the viewing of a series of films on the same topic seemed to have a cumulative effect on the attitudes of viewers.

Since the 1930's, when these studies were conducted, there have been a substantial number of other research studies that have verified the impact of filmed messages on attitude changes. Levonian (1960, 1962, 1963) published a series of articles that described the processes used to develop a persuasive film on India. Levonian administered a questionnaire to the target audience and analyzed the responses to this instrument in order to develop the script for the persuasive film on India. Results of the final study (1963) showed that the film produced as a result of the data collected from the questionnaire was successful in significantly changing the attitudes toward India of viewers of the motion picture.

Winick (1963) reported that a film on drug addiction, "The Man With the Golden Arm", produced a shift in attitudes of viewers in the direction of a more permissive attitude toward the narcotics addict, as compared to controls. Greenberg (1963) evaluated the attitudinal impact of two films with identical visual content but opposite narratives. One film claimed communism was active in the U.S. while the other took the opposing position. Results indicated that attitudes toward communism were stabilized in viewers of the first motion picture. Subjects who watched the second film developed strongly negative attitudes toward the group that advocated that communism

was playing an active role. This was the position presented in the narration of this film version. Another study (Hanson, 1968) reported that a color film on the necessity for parental involvement in the development of normal speech habits of their children produced an attitude change in parents in the direction advocated in the motion picture.

An interesting adaptation of the use of persuasive films was presented in a study by Rogers (1973). This experiment evaluated the impact of public health films on attitudes toward cigarette smoking, safe driving, and venereal disease. Rogers found that the more noxious the film was the more fear that was aroused in the viewer. However, it was also found that attitudes of viewers of films on these topics were changed most dramatically when the motion picture either gave effective preventatives, or convinced the viewer of the likelihood of exposure to the malady depicted in the film.

Another group of studies that reported positive attitude changes in the viewers of films were those that included some type of post-film discussion or follow-up in the experimental design. Allison (1966) reported that positive attitude changes toward the film topic science were only produced after viewing ten motivational films accompanied by follow-up discussions. Bur-chter (1968) found that attitudes toward continuing education were positively changed in viewers of films who also participated in lectures and discussions on this topic. In a study by Domyahn (1973) a non-persuasive film on America's responsibility for the fall of Eastern Europe after World War II was used with various types of post-viewing critiques and discussions. Significant attitude changes were produced in viewers of the film who also participated in a persuasive critique. Fay (1974) also used follow-up discussions after experimental

subjects saw a film on the need for the design of barrier free buildings. Attitudes toward this topic were significantly changed.

Four additional studies were found in the literature where filmed treatments were used to positively change attitudes toward the topics presented by motion pictures. Greenhill (1957) reported on a study where a film on the mentally retarded was used to shift some personality scale responses of viewers. Alese (1973) also evaluated the impact of a film about mental retardation, and reported a small but significant change in attitude toward acceptance of the mentally retarded in viewers of the motion picture. Reid (1970) evaluated the impact of two versions of a presentation about the church. Both the traditional film version and multi-image version of the presentation were successful in changing attitudes of viewers toward the church in one of two situations. Incidental instruction in the form of two films, a lecture, class discussion and a hall display were found to be successful in changing attitudes of junior high students toward the problem of overpopulation (Sourers, 1973).

A final study (Buvinie, 1976) was found in the literature that reported positive attitude changes in viewers of a filmed treatment. This experiment evaluated the aggression heightening effect of a violent film scene on college men. Results indicated that the aggressive motion picture significantly heightened the strength of a film viewer's written attack on a partner, as compared to viewers of a non-aggressive film. Aggression occurred only if evaluation immediately followed viewing. It was theorized that this heightened tendency towards aggression was produced as a consequence of viewing the film scene.

A somewhat smaller number of studies were found that reported non-significant attitudinal changes in viewers of persuasive motion pictures.

During the 1940's McFarlane (1945) was attempting to use motion pictures to change children's attitudes toward other races, and while significant results were not obtained it was found that "story" films that were realistic to children were probably better at changing attitudes than "non-story" films. Kishler (1950) found that college students who viewed persuasive motion pictures with a main character who had an occupation/position with a high prestige value for them tended to change their attitude in the direction advocated by the character. However, experimental results were not significant.

Spigle (1956) conducted a study on attitude changes of high school boys toward the armed services. Results were conflicting. While most viewers of the motion picture changed in their attitudes toward the military, they did so in opposite directions. The motion pictures seemed to have caused those who were originally less favorable to become more favorable, and those who were more favorable to become less favorable.

Mental health films shown to prison inmates did not produce all predicted changes in attitudes even when group-centered psychotherapy sessions were included, according to results reported by Greenhill (1957). A similar inconclusive outcome was discussed in a study conducted by Merrill and McAshan (1960). This study was conducted to produce attitude changes toward traffic safety as a result of viewing a persuasive film. Even though considerable pre-production analyses were conducted before the motion picture was produced, similarly to what Levonian (1963) attempted, the predicted attitude shifts were not produced.

Merrill (1962) concluded that defensive avoidance prevented alteration of attitudes as predicted in viewers of "attitude films" that used dramatic plot and characters to alter social attitudes. Similarly,

Wickline (1965) found no significant changes in attitude toward science produced in experimental subjects who viewed weekly motivational films on science.

Two additional studies were found in the literature and neither reported desired attitude shifts resulting from film treatments. Sullivan (1964) found no differences between attitudes of high school girls who viewed persuasive films on college and those who did not. Bond and Rosing (1973) showed a film on hunting to mentally retarded subjects and found changes in attitudes that were opposite to those hypothesized.

In spite of the fact that many researchers were able to produce attitude changes in viewers of persuasive motion pictures there were a smaller but sufficient number of experimenters who used similar procedures, but who were not able to produce attitude changes (e.g. Levonian, 1963; as compared to Merrill and McAshan, 1960; for example). Attempts to find solutions to the inconsistency of reported results were made by several researchers. Miller (1969) attempted to discover if film motion had any influence on the emotional involvement of viewers, and thus the production of attitude changes. A filmograph was compared to a film on the same topic. Results supported the hypothesis that the motion picture version would produce significantly greater attitude changes than the still pictures. Browning's (1975) two by three design (ability by film, color TV, or black and white TV) did not produce any significant attitude differences or interactions toward the topic of nutrition. Morin (1976) attempted to ascertain if skin color or speech patterns of the actor in a film would affect racial attitudes. No significant differences were reported.

One unique experiment that did produce significantly different attitude changes was conducted by Schwartz (1970). Three treatment groups

were included in the design of this study. Each group saw the same film, but the sound track was altered to either support, glorify, or contradict the anti-war theme of the motion picture. Attitude change in the direction advocated by the film were produced when the sound track was glorifying or supporting, but not when it was contradictory.

E. Summary: Obviously, no conclusive statements about the impact of film on attitudes should be made. Results of studies reviewed were not uniform enough. However, some general implications were apparent. It would seem that viewers like films, and like to learn from motion pictures, at least as well as other forms of instruction. It also would seem that subjects' attitudes toward the content of films was often quite positive. Viewers valued information presented by motion pictures. Additionally, attitude changes were more often than not produced in viewers of persuasive films. Motion pictures were found to be a powerful tool for delivering controversial messages, especially when extreme care was used during planning, production, and utilization of the film. In short, motion pictures would seem to have been a viable mechanism for delivering information when attitudinal outcomes were important.

III. STILL PICTURES

Still media (slides, filmstrips, filmographs, and photo essays) were not evaluated and written about in the research literature in as great a quantity as was experimentation on film and television. Twenty-three studies were found that evaluated the impact still visuals had on the attitudes of viewers. The absence of motion in the presentation of visual information was the most obvious difference between this medium and the TV/film media. Evaluations of research on still media were included in this review to provide as complete a discussion of the media-attitude relationship as was possible.

A & B. Comparisons of Still
Photography to Other Media:

Three studies were found that reported positive reactions by students toward instruction by still media. Vander Meer (1961) reported "highly favorable" reactions of students toward posters and tape recordings as a method of teaching. Crist (1967) compared written programmed instruction (PI) to programmed frames projected one frame at a time with a 35mm slide projector. It was reported that students who used the projector were more positive about their instructional mode than were the traditional PI students. Hempstead (1973) studied reactions of sixth graders to five types of mediated presentations (print, verbal sound, print with pictures, print with verbal sound, and pictures with verbal sound). Results indicated that pupils preferred print or pictures with verbal sound, and that subjects in these treatments had the most positive attitudes toward the learning experience, as compared to subjects in other treatments.

Two experiments attempted to determine if pictorial embellishments on still slides improved the attitudes of viewers toward the slide medium. Results were contradictory. Baker and Popham (1965) reported that those subjects who saw an embellished version of a slide presentation were more favorable to the presentation than were viewers of unembellished slides. A later study by Popham (1969) did not report any significant preferences for embellished slides by viewers.

Filmograph versions of motion pictures reported in section II (Instructional Film Research Program, 1954; and Miller, 1967) seemed to provide weak support for the hypothesis that motion versions were a preferred method of instruction to still versions of the same script.

Thus, it would seem that while still media pictures were favorably received in certain instances, there were other instances reported where information was depicted more positively by motion media. Actually, there were an insufficient number of studies reviewed in this category to develop any conclusive opinions on the medium-related attitudes of learners.

C. Attitude Toward Content of Instruction from Still Media:

Nine studies were identified in the research literature that evaluated the impact of still visuals on the content-related attitudes of learners. Only one study (Vickers, 1972) reported positive results. It was found that students who were taught English using a large number of overhead transparencies and worksheets had significantly more positive attitudes toward that topic than controls. However, results were suspect because subjects were not randomly assigned and different instructors taught the control and experimental groups.

Four researchers reported no significant differences as the result of experiments that evaluated attitudes

toward content delivered by still pictures. Reeser (1972) used a slide presentation, booklets, and lectures to present information on the construction industry, and while results were not significant, the slide subjects did possess the most positive attitudes toward the subject. Kolmos (1970) designed a study that compared attitudes of college students toward statistics after receiving instruction from 35mm slides either in study carrels or in the classroom. Control subjects received lecture instruction. No significant differences in attitudes toward content were reported. Another study reported that eighth grade mathematics students did not change in their attitudes as a result of filmstrip instruction, and were not significantly different from students traditionally taught (Wilkinson, 1971). Watts (1974) reported no significant differences toward sex education for students taught by slides, lecture, or independent study.

Four experiments were identified that attempted to evaluate the characteristics of still pictures when they were used as a method of instruction. This was to determine if these characteristics had any impact on the attitudes of viewers. Two studies (Winn and Everett, 1978; and Katzman and Nyenhuis, 1972) compared black and white slides to color slides. Katzman and Nyenhuis reported that a color slide presentation produced more positive affective reactions in viewers, but only two of the several attitudinal comparisons made were significant. Winn and Everett reported that color did seem to influence affective meaning, and that younger subjects were more positively influenced by color than older subjects.

Ainsworth (1970) varied the frequency of still visual change for either five, three, or one second intervals. Each slide was viewed for a total of ten seconds, but there were no attitude differences produced that seemed related to frequency or time of viewing. Miller and Roberts (1965)

conducted a similar study to several reported by film and television researchers, but with slides. They developed two versions of a slide presentation but varied the race of the actor depicted. It was found that the viewer characteristic "closed-mindedness" exercised the greatest influence on attitude toward the message presented. The most negative attitudes were expressed by closed-minded individuals exposed to the black actor.

Results of studies reported in this section did not seem to provide support for any hypothesis related to the positive or negative impact of still media on content-related attitudes of learners. Few significant findings were reported. Possibly the informal nature of the classroom use of slides, filmstrips, or transparencies contributed to this lack of definitive conclusions.

D. Attitude Changes Toward
Content of Still Picture
Presentations

Six experimental studies were found in the literature that were designed to determine if attitude changes could be produced as a consequence of instruction from still

pictures. Five of the six studies reported desired attitude changes.

One of the earliest studies involving mediated materials and attitude change was conducted by Janis and Feshbach in 1953. This experiment involved the use of "fear-arousing" slide presentations with appeals of varying strength about the perils of poor dental hygiene. Results indicated that the slide presentations were effective in producing desired affective responses in viewers, but that minimal appeals were more effective than stronger, fear-arousing appeals. Janis and Feshbach concluded that this was because a strong appeal increased the likelihood that the

audience would be left in a state of emotional tension, and if this tension was not fully relieved by the reassurances contained in the message the audience would tend to ignore or minimize the importance of the threat. This conclusion seemed to support those offered in the study by Rogers (1973) that evaluated the effects of fear-arousing films on attitudes.

Allen (1968) also reported results of a study that supported results found in other media/attitude experimentation (Skinner, 1967; Allison, 1966; and Burrichter, 1968; for example). Allen's study reported that a slide presentation was effective in changing the attitudes of culturally disadvantaged students, and that these changes were most likely to occur when students were allowed to actively participate in, and respond to, the message. Also, low intelligence, less knowledgeable students were most susceptible to attitude change. Jouko (1972) reported similar results in a study on social studies attitude change. There was a negative relationship found between amount of attitude change and pre-instruction familiarity about social studies.

Litcher (1969) conducted an experiment with possible implications for the textbook industry. Results supported the hypothesis that the use of multi-ethnic pictures in textbooks would produce positive race-related attitude changes in students who used them. Last, Piersma (1974) found that attitudes toward Africa were successfully changed through the use of an audio-visual presentation on that topic.

Only one study was found where still pictures were unsuccessful in producing desired attitude changes. Smith (1972) reported that a film-strip/tape presentation designed to alter teachers' attitudes about behavioral objectives did not produce any uniform attitude alterations even though different personality types seemed to be influenced differently

by the presentation.

E. Summary: Because of the small number of studies found and reviewed that examined the impact of still pictures on attitude formation and change, few conclusions can be proposed. It does seem that still media did not produce as large a percentage of favorable reactions in viewers as did television and film. The exception to this generalization was in the area of attitude change. It did seem that still media instruction was successful in producing desired attitudinal changes in viewers, and these positive outcomes were most likely to be found when the still media was designed, produced and used properly. This finding supported similar conclusions reported in the television and film sections of this review.

IV. EVALUATION OF PROCEDURES USED IN MEDIA/ATTITUDE RESEARCH

Without attempting an in-depth analysis of research and research design, there seemed to be four prevalent characteristics of the media/attitude research reviewed in this paper that prompted a critical questioning of the results and conclusions offered. These design faults seemed somewhat unique to this area of educational research, and not as typical of other forms of instructional experimentation. Certainly, these deficiencies were not found in all, or even most of the studies reviewed. However, these problems occurred often enough so that they should be considered when research conclusions are offered, and should be avoided when future experimentation in this area is planned.

A. Definitions: Apparently, attitude was a difficult concept for researchers to adequately define. Actually, attitude was used as such a broad, all-inclusive term that a single definition for all studies would not have been adequate. However, it is imperative in future research that whenever "attitude" is measured the experimenter must define what is meant by that term in the specific research situation under study. This operational definition should be based on attitude literature and should be clearly stated for the research consumer. A common fault of the research reviewed above was the failure by experimenters to operationally define what was meant by attitude.

Additionally, much of the media/attitude experimentation reviewed seemed to have been designed in a theoretical vacuum, especially the attitude change studies. There seemed to have been little effort at relating attitude hypotheses or results to any theoretical framework.

In fact, many researchers failed to include any review of attitude research in the literature sections of their studies. It would seem imperative that future media/attitude research should carefully draw upon the literature of attitude change and perception theory, for example, when experimental studies are developed.

B. Measurement: It has been said that an experimental treatment is only as good as the measure used to determine its success.

The measures used in studies reported above often seemed to be faulty. In over fifty percent of the reviewed studies no standardization of the attitude measurement tool appeared to have been attempted. Fewer than twenty percent reported any descriptive information about their attitude tests. Most measures seemed to have been locally prepared and intended for use only once--in the specific study reported.

C. Design: Many studies reviewed that were conducted prior to Campbell and Stanley's (1963) publication on research design did not use generally accepted experimental procedures when testing attitude hypotheses. This was to be expected. What was of greater concern was the poor design and control procedures used in more recent studies. The problem was compounded by the fact that attitude measurement was often not of primary concern to the researcher, but rather was a post-hoc analysis that had peripheral importance and connection to the main purposes and design of the study. Attitude hypothesis testing should demand the same design rigor as the testing of any experimental question.

D. Follow-up: Long term follow-up of the results of treatments was almost uniformly nonexistent in the attitude research reviewed. Many critics of attitude research consider attitudes to be

transitory and attitude changes short-lived. While there is some evidence to refute this criticism in the psychological literature on attitudes, the long term consequences of mediated instruction on learner attitude needs additional evaluation.

Obviously, when the problems described above permeate a body of research it is difficult to identify relationships or trends. However, it is the opinion of this reviewer that in several categories the quality and quantity of research efforts allows for the development of fairly concrete conclusions by the reader. The foundations for the review summaries provided in the following section of this paper were based on this substantial number of high quality experiments.

V. SUMMARY AND OPINIONS

The very nature of educational research often prohibits the development of conclusions that can be widely applied to a variety of situations. This review tended to uphold that limitation of research in general and especially in the specific area of instructional media and attitudes. In every category of review there were substantial numbers of studies that offered contradictory results. While the percentages of positive, or predicted, results reported were often very high in many categories, the obvious inadequacies of many experimental designs, coupled with the numbers of non-significant findings, prohibited the reviewer from developing any prescriptive conclusions about the relationship between media and attitudes. As a matter of fact, it would seem to this reviewer that only one, broad, general conclusion concerning the relationship between media and attitudes was apparent and that this conclusion was a most obvious one. Instructional media is primarily a carrier of information, and plays its greatest role in the teaching/learning process as a delivery mechanism. Characteristics of media and mediated instruction, such as flexibility of use, accessibility of materials and equipment, and relationship of content characteristics to specific media characteristics, for example, were probably most important in determining affective outcomes in learners (or cognitive ones, for that matter) in the studies reviewed. Any inherent communication-related characteristics of a given form of media were probably of secondary importance in the determination of attitudinal outcomes.

However, a reviewer would be just as remiss in his/her mission by not offering the reader opinions about how to interpret review information. A careful examination of the experimental research reviewed above does

foster certain "research opinions" in the reviewer. These opinions, while certainly not definitive, might possibly be valuable in providing guidance for future researchers interested in this area. Also, it was obvious that there were a large number of successful studies that used techniques valuable to the researcher as well as to the developer of mediated instruction. The synthesis of such information was stated in the terms of "Research Opinions". These "opinions" were annotated by citing those studies that supported each.

I. Research Opinion - General

Instructional media materials that were most likely to produce positive or desired attitudes in learners were those that were specifically planned for this purpose and that included procedures or activities designed to influence all three of the components of attitude (affective, cognitive, and behavioral; Zimbardo and Ebbesen, 1970).

A. Methods of positively influencing the affective component of attitude:

Specific Opinion #1 - "Realistic" media (with many visual cues, for example) seemed to be preferred and "liked" by students (Ganschow, 1970; Katzman and Nyenhuis, 1972; Booth and Miller, 1974; for example). In other words, realistic situations depicted realistically seemed to be highly regarded by viewers of mediated instruction.

Specific Opinion #2 - Technically "well-done" materials that were specially designed seemed to be valued highly by learners (Levonian, 1960, 1962, 1963; for example).

B. Methods of positively influencing the cognitive component of attitude:

Specific Opinion #3 - Students seemed to react more favorably when "new" information was presented in a persuasive communication, or in a mediated lesson (Knowlton and Hawes, 1962; Allen, 1968; Jouko, 1972; for example).

Specific Opinion #4 - Younger students seemed to be most likely to react favorably to mediated instruction when it was presented realistically, possibly because new information was being presented to them (Peterson and Thurstone, 1933; Winn and Everett, 1978; for example).

Specific Opinion #5 - Information presented by some credible source, or in a credible manner, tended to be valued most favorably by viewers (Kishler, 1950; Seiler, 1971; O'Brien, 1973; for example).

C. Methods of influencing the behavioral component of attitude:

Specific Opinion #6 - Students who were actively involved in the planning and/or production of mediated instruction seemed to be favorably directed towards the medium used, and toward the message delivered (Erickson, 1956; Simonson, 1977; for example).

Specific Opinion #7 - When students were involved in the delivery of mediated instruction, such as by answering questions, or by participating in the sequencing of materials, they seemed likely to be positively affected (Kraus, 1962; Goldman, 1969; Coldevin, 1975; for example).

Specific Opinion #8 - When follow-up discussions and critiques were used in conjunction with mediated instruction, students tended to react favorably toward the medium and content discussed, and were more likely to change attitudes in desired directions (Allison, 1966; Skinner, 1967; Burrichter, 1968; Domyahn, 1973; Fay, 1974; for example).

Specific Opinion #9 - Any technique of design, production, or delivery that increased a viewers emotional involvement was likely to produce desired attitudes or attitude changes, if there was ample opportunity during the instructional situation for the student to alleviate the arousal produced. This alleviation should have been related to the attitude position desired or advocated (Janis and Feshbach, 1953; Miller, 1969; Rogers, 1973; for example).

II. Research Opinion - General

Merely converting a message from one media delivery type to another usually had little positive affect on the attitudes of learners toward the instructional activity, or the content presented, and often had an adverse influence on the attitudes of learners. There was no "best" medium for influencing attitudes (Walton, 1963; Backens, 1970; Meyer and Gute, 1972; Levine, 1973; for example).

Depending on the reader's frame of reference, mediated instruction either greatly influenced, or did not greatly influence the attitudes of students. If mediated instruction was defined to include the entire learning process of which television, film or still pictures were a part, then those media did seem to contribute to the attitude formation and change of viewers. If only the media themselves were evaluated, then conclusions were much less conclusive. It would appear that mediated instruction was only one variable operating during the process of forming or changing attitudes, and that media played a role of varying importance, depending on the specific situation under study.

TABLE 1. CATEGORY SYSTEM FOR REVIEW OF MEDIA/ATTITUDE EXPERIMENTS

	<u>Attitude Category</u>				Totals
	A. Toward Medium	B. Comparisons To Other Methods	C. Toward Content	D. Changes Toward Content	
I. Television	12*	13	18	20	63
II. Motion Pictures	6	7	10	33	56
III. Still Pictures	8 (combination of A and B)		9	6	23
					142

* Number of studies in this category

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